

# **THE INFLUENCE OF ONLINE RATINGS AND REVIEWS ON HOTEL BOOKING CONSIDERATION**

## **ABSTRACT**

This paper analyses the impact of good vs. bad ratings during the first stage of the decision-making process when booking a hotel. This study tested the interaction between numerical ratings given to a product or service and the number of verbal reviews it has received while controlling subject susceptibility to interpersonal influence. The study conducted a full factorial between subjects design of 2 levels of ratings (good vs. bad) x 2 levels of reviews (high vs. low) in a decision-controlled setting. Results suggest an asymmetric interaction between numerical ratings and reviews: When the rating is good, the trust in the rating depends on the number of reviews, but conversely, if the rating is bad, the number of reviews has no effect on how trustworthy the rating is. Academic and managerial implications of this study and scope for future research have also been discussed.

## **Keywords:**

Online social influence, ratings, reviews, hospitality, decision-making process

## 1. Introduction

Our society is increasingly relying on the aggregated opinions of peers online. Contributions made by users on technological platforms facilitate the interaction between like-minded community members who share shopping interests, thus facilitating the decision-making process (Amblee & Bui, 2012, p.91). These contributions have become the main source of social influence when making a purchase (Cisco System Report, 2013). Within such a technological context, companies in the consumer sector—tourism and hospitality, travel, leisure, electrical devices, etc.—must face the challenge of managing the large scale, anonymous and brief opinions of others. Therefore, organizations need new knowledge that allows them to capture, analyse, interpret and manage online social influence (Litvin, Goldsmith & Pan, 2007).

Marketing literature recognizes that consumers have the ability to influence each other (Ditcher, 1966; Cialdini, 2009). On the Internet this influence is omnipresent and is exerted through, among other things, recommendations, numerical ratings and verbal reviews (Amblee & Bui, 2012).

Previous research has focused on the influence that online recommendations and reviews have on the different stages of the decision-making process when purchasing a product. Research has revealed that products are selected twice as often if they are recommended by others and this influence is dependent on the type of recommendation source. Online recommendation systems offered by online retailers are more influential than the recommendation from experts or other consumers (Senecal & Nantel, 2004). These results are moderated by the type of product. With regard to the reviews, its influence on buying decisions has been studied for different type of products: books (Chevalier & Maizline, 2004), hotel stays (Vermeulen & Seegers, 2008, Zhu & Zhang, 2010; Snyder, 2005), in terms of both sought-after and experiential goods (Mudambi & Schuff, 2010), and also the ability of comments to modify the visibility of a product (Duan, Gu & Whinston, 2008; Lee, Shi, Cheung, Lim & Ling, 2011). Reviews have also shown to act as anchors of consumer experience and to encourage subsequent reviews on the Net (Moe & Schweidel, 2011).

Today online consumers have to deal with huge amount of information, new search engines, different devices, and new strategies to approach information in order to make a purchasing decision. In this new context, online ratings become one of the most trusted sources when making e-commerce decisions. Usually, consumers have faith in these ratings

and view them as trustworthy. A Nielsen report found that consumers' ratings were the second most-trusted source of brand information (after recommendations from friends and family) (Nielsen 2012). Companies are sensitive to these changes. ComScore (2007) examined the impact of consumer-generated reviews on the price consumers were willing to pay for a service to be delivered offline. Consumers were willing to pay at least 20 percent more for services which have received an "Excellent," or 5-star, rating than if the same service has received a "Good," or 4-star, rating.

Despite the influence of, and the interest in ratings, only few researchers have so far analysed the influence exerted by anonymous and non-expert raters on consumer purchasing decisions. Moreover, in online purchasing decisions, people usually receive two types of information simultaneously: an overall numerical rating and a sample of individual verbal reviews. Both exert a particular influence on the consumers, and their interaction is particularly telling. No research we are aware of, however, has investigated the interaction between the influence of ratings and the volume of reviews on consumers' purchasing decisions.

Therefore, the goal of this paper is to deepen the knowledge about the influence of ratings and number of reviews. Specifically, we look at the interaction between the rating and the number of reviews that goes along with it, in decisions taken during the first stage of the purchasing decision process. We will analyse the mediating effect of trust on the relationship between the rating and the intention to shortlist a product or service, as well as the moderating role of the number of reviews in the indirect effect of the numerical rating on trustworthiness.

From a business perspective, gaining a better understanding of how product ratings and reviews influence consumer choice is vital to further understand the relationship between online customer reviews and business performance.

In the following sections we present the literature review and hypotheses. Subsequently, we report a full factorial between subjects design of 2 (good vs. bad ratings) x 2 (high and low number of reviews) in a decision controlled setting. Finally, we conclude by discussing the results and presenting suggested future research directions in this area.

## **2. Literature review and hypotheses**

### ***2.1 Rating Influence and Social Proof***

Previous research has shown that the efficacy of online ratings and reviews, as a source of information for consumers is relatively limited. First, online reviews may merely represent

consumers' preferences. Second, reviewers are not a randomly drawn sample of the user population. Anderson (1998, p.15) found that extremely satisfied and extremely dissatisfied customers are more likely to initiate word-of-mouth (WOM) communications. Li and Hitt (2008) found a potential bias in consumer reviews during early product-introduction periods. Recently, empirical evidences have proven that prior ratings are capable of biasing future ratings based on a positive social influence (Aral & Walker, 2012, p.337). Third, interested parties can easily manipulate online forums. Hu, Bose, Koh, and Liu (2012) analyzed the scenarios in which firms can anonymously post online reviews to praise their products or to increase awareness about the products.

As a result, potential buyers may heavily discard any online review. But none of these arguments seems to alter customer's reliance on others' ratings and reviews. On the contrary, year by year, customers' trust in online ratings and reviews has been increasing and has even become as relevant as personal recommendations when taking purchasing decisions (BrightLocal, 2014).

There has been a long-held belief in social sciences in general, and in marketing in particular, that others' influence our behavior (Katz & Lazarsfeld, 1955; Burnkrant & Cousineau, 1975). Social influence adopts two forms called normative and informational, respectively (Kelman, 1961, p.61). Normative social influence is the one exerted by the primary reference groups, and originates from behaviours that promote conformity with the expectations of other individuals, with the final purpose of obtaining rewards or evading penalties. In contrast, informational social influence involves the acceptance of information or advice from people who are not known by the subject but who provide reliable evidences of reality (Burnkrant & Cousineau, 1975, p.207).

The use of aggregated ratings that result from peer evaluation of products or services represents a form of social influence, which involves accepting information or advice from an unknown person. Online ratings have become an important source of information to consumers, substituting and complementing other forms of word of mouth communication about the quality of services such as hotels or restaurants. In fact, one of the main ways in which a booking website differs from a brochure is that the website can provide evaluative and descriptive information from peers' experiences. Consequently, numerous managers believe that a web site needs to provide community content, and therefore, firms proactively induce their consumers to rate and spread the word about their products or service experiences online (Godes & Mayzlin, 2004). An underlying belief behind such strategies is that online

user ratings and reviews can significantly help build brand loyalty and influence consumers' purchasing decisions.

Empirical results from previous studies offer mixed findings to support this idea. For example, in an online experiment, Senecal and Nantel (2004) found that participants who consulted product recommendations selected recommended products twice as often as those who did not consult recommendations. Godes and Mayzlin (2004) showed that there was a positive relationship between the volume of WOM regarding a TV show and the number viewers watching the show. Liu (2006) studied movie reviews and found that online movie reviews offer significant explanatory power for both aggregate and weekly box office revenues. Dellarocas, Zhang and Awad (2007) pointed out that adding online movie ratings to their revenue-forecasting model significantly improved the model's predictive power. Also, Reinstein and Snyder (2005) showed that positive reviews have a particularly large influence on the demand for drama and narrowly-release movies. These studies generally suggest that many consumers make offline purchase decisions based on online information.

However, consumers' reliance on online ratings and reviews is moderated by several factors. For instance, the product type and the consumer's specific characteristics can affect the degree of trust in online reviews. Specifically, the depth of the reviews is perceived as more helpful for search goods than for experience goods (Mudambi & Schuff, 2010). In the video game industry, online reviews have a greater influence on the video game players when they have more Internet experience (Zhu & Zhang, 2010). The perceived expertise of the author of the review may also exert a more effective influence on readers (Boatwright, Basuroy & Kamakura, 2007). Depending on the level of expertise, Park and Kim (2008) conducted a study from the twin perspective of the authors' expertise and the customers' expertise. Their results indicate that the cognitive fit between the type of review—attribute-centric vs. benefit-centric—and customers' level of expertise solve prior inconsistencies between online consumers' reviews and purchase intention. Also, Duan et al. (2008) stated that online reviews themselves do not play a direct role in influencing consumer purchases, but act as a reliable predictor of sales.

Observing others helps form a more accurate perception of reality and to react accordingly, as well as in maintaining a favourable self-concept. An inaccurate perception of reality could mean “the difference between getting a bargain and being duped” (Cialdini & Goldstein, 2004, p. 592). In complex environments, where options multiply, time is scarce, knowledge is limited, and there is a perceived risk and / or lack of interest to be involved in a

complex decision process (Lee et al., 2011, p. 185), the use of information provided by others helps solve the unaffordable amount of alternatives, and reduces the complexity in the decision making (Salmon et al., 2015).

The tendency to rely on ratings when making ones decision follows from the heuristic known as social proof (Cialdini, 2009). Heuristics are simple rules of thumb that facilitate the decision-making process by excluding part of the information (Gigerenzer & Gaissmaier, 2011). This heuristic of social proof can be triggered by presenting easy-to-read information provided by a large enough group of others, either professionals (Boatwright et al., 2007) or merely peers (Rao, Greve & Davis, 2001).

Social proof represents a kind of imitation that is a characteristic response to uncertainty in decision making (Cyert & March, 1963). Looking at the actions of others for clues as to what constitutes an appropriate action, or accepting information obtained from others as evidence about reality, represents a peripheral route of persuasion (Cialdini, 1993). Subjects engaged in such route of persuasion minimize or reduce search cost, and avoid the effort of experimentation (Rao et al., 2001). Imitation is most influential when decision makers are uncertain about their decisions and when they are able to observe others similar to them (Jacobson, Mortensen, & Cialdini, 2011; Salmon et al., 2014).

Consumer choice is a multi-stage process in which consumers build increasingly small mental sets of choice options. According to the consideration set model of consumer decision making (Roberts & Lattin, 1991), in the first stages, consumer's task is to narrow down the universal set to high salience options. Salience can be the result of awareness. In the Internet domain, ratings and number of reviews represent an important factor to gain salience for a possible choice option.

When making a purchase decision the consumer is in a goal-oriented mode that favours an easy information processing approach (Van Schaik & Ling, 2009). Ratings are easy to process and can be easily employed to deal with a large quantity of information, and help to establish selection criteria i.e. only options over 4 in a 5 scale rating. Ratings become a readily accessible informational cue (Pennington, 2000) that is influential when choosing a product (Chen & Xie, 2008).

However, product ratings usually come along with a certain number of reviews. The quantity of reviews generates awareness as well as provides a social proof of popularity. Consumers should manage to combine this dual source of information, while minimizing or

reducing search cost. Aggregate ratings and the amount of reviews interact by means of the use of the heuristic: “lots of reviews turn a rating into a reliable figure.” Later, the purchasing decision process continues by narrowing the consideration set until it gets to a single item of choice. At this point, several other factors become critical.

Therefore, when focusing on the first stage of the decision-making process, where consumers are narrowing down the universal set of alternatives, trustworthiness becomes a significant way of increasing the salience of choices, as we state in the following hypothesis:

**H1:** The impact of a numerical rating on the formation of the consideration set of a product/service is mediated by the trustworthiness of the rating.

## ***2.2 The moderating role of the number of reviews***

Papathanassis and Knolle (2011) observed that positive and negative reviews affect consumers differently. Negative reviews, and mixed reviews—including positive and negative content—appeared to have a greater impact than merely positive ones. Respondents spent significantly more time examining and commenting on critical reviews. Also, Chevalier and Maizline (2004) found that an improvement in the number of reviews for a book on one site leads to a relative increase in the sales of that book on that site. However, the marginal (negative) impact of 1-star reviews is greater than the (positive) impact of 5-star reviews. Underlying this asymmetry is the fact that customers suspect that among the reviewers are authors, business owners or other biased parties. Conversely, negative reviews are seen to come only from reliable sources. This ignores the plausibility of falsifying negative reviews to damage a competitor. Therefore, the trustworthiness of bad ratings tends to be higher than that of good ratings.

When focusing on the first stage of the decision-making process, when consumers are narrowing down the universal set of alternatives to a smaller set of high salience choices, bad ratings are trusted more easily than good ratings. This is due to the underlying belief that negative content does not entail a falsification motive. Thus, the influence of the number of reviews will be lower. In this case, the number of reviews does not provide reliability, because the rating itself is reliable enough.

On the contrary, in case of a high rating, the quantity of reviews moderates the relationship between the rating and the reliance on such rating, because the number of reviews provides a proof of the reliability of the rating. This is important because it has been shown that hotels with higher online star ratings receive more online bookings (Ye, Law & Gu,

2009). High rating increases the likelihood of purchasing as long as the ratings are reliable, that is, when they are supported by numerous reviews.

Therefore, we hypothesized the following statement

**H2:** Consumers find good (*vs.* bad) online ratings trustworthy only if the number of verbal reviews is high, and not otherwise. In contrast, consumers find bad online ratings to be trustworthy regardless of the number of verbal reviews.

We anticipated that the trustworthiness of good ratings tends to increase as the number of reviews increases, whereas for bad ratings, the consumer trusts the numerical rating independently of the number of reviews.

INSERT FIGURE 1

### **3. Methodology**

To test the influence of ratings and number of reviews on consumer trustworthiness and its further effect on product consideration, we conducted a full factorial between subjects design 2 (good *vs.* bad rating) x 2 (high *vs.* low number of reviews) in a decision-controlled setting where participants were asked to book a hotel in a fictitious Web site designed for the purpose of the experiment.

Current design of large hospitality websites, such as Booking.com or TripAdvisor.com, combine the features described above: overabundance of alternatives and information about each alternative, and saturation caused by the volume of options to compare, which can create uncertainty about selecting which option will be a good decision. Thus, the numerical ratings and the amount of verbal reviews become a significant source of information that can reduce initial uncertainty and simplify or facilitate the prioritization of alternatives for Internet users.

#### ***3.1 Stimuli and pre-test***

We designed a fictitious stimulus that resembled a hotel's booking link on Booking.com for the purpose of the experiment.

In order to assign a value to represent a good *vs.* a bad rating as well as a high *vs.* a low number of reviews, we randomly selected 50 hotel links on Booking.com and TripAdvisor.com from five European capitals. We then calculated the quartiles of their ratings and number of reviews.



We chose the average of the first quartile as a bad rating and the average of the fourth quartile as a good rating. Data were adapted to 1-10 scale to emphasize the range. As a result, 9.2 out of 10 was considered a good rating and 3.2 out of 10 was considered as a bad rating. We followed the same calculations for the number of reviews where 913 represented a high number of reviews, and 102, a low number of reviews. Next, we created four versions of the same hotel proposal, resembling the presentation on Booking.com (See Appendix 1.).

All four versions consisted of a picture of a hotel located in a European capital city centre, but the numerical rating (good, bad) and the number of reviews (low, high) changed according to the experimental condition. To control for the influence of price and image, we included an icon saying “Best price”, and a non-diagnostic picture that did not suggest any specific characteristics of the inside or outside of the hotel.

To assess the appropriateness of the stimuli manipulation, we conducted a pre-test with a total sample of 60 panellists. Participants were told that they would be rating a hotel proposal for a weekend trip. Each participant was randomly assigned to one of the four alternative proposals. They were allowed to view the picture for as long as they wanted. Participants then rated the hotel on a list of three attributes—resemblance of the input to a hotel proposal from a booking site, wording, and understandability of the information—using a seven-point Likert scale (1 = lowest and 7 = highest). Mean of resemblance of the inputs was 6.17 (SD = 1.03), wording (M = 5.77; SD = 1.14), and understandability of the information (M = 5.7; SD = 1.15). There were no significant differences between the good vs. bad rating design in any of the three dimensions pretested: resemblance of the input ( $t(58) = -1.262, p = 0.212$ ), wording ( $t(58) = -.225, p = 0.823$ ), and understandability of the information ( $t(58) = -1.586, p = 0.118$ ); neither between the high vs. low number of reviews design: resemblance of high vs. low number of reviews ( $t(58) = .249, p = 0.804$ ), wording ( $t(58) = .676, p = 0.502$ ), and understandability of the information ( $t(58) = .444, p = 0.658$ ).

The questionnaire was examined by a panel of experts to ensure content validity and to guarantee accuracy in the translation. To verify the clarity of the questions and gain feedback on the length of the questionnaire, it was further tested in a group of 25 target participants.

### **3.2 Main study**

Participants (N = 130, cell sizes from 31 to 41) in the experiment were a convenience sample of Spanish subjects, aged between 30 and 60 years (mean age = 43.7 years). The study was conducted using Google Forms. Participants were informed at the beginning that the

study involved research on hospitality and new technologies. Data collection was completed in three stages. The task was self-paced. First, participants answered several questions about the use of the Internet. Immediately after, they were asked to read a brief description of the context: they were going to spend a weekend with friends in a European capital city, and at that moment, they were browsing a hotel booking webpage, where they came across the hotel offer (stimulus). Next, participants rated their trustworthiness in the hotel offer and their intention to include it in their consideration set. Finally, participants answered the questions referring to their susceptibility to interpersonal influence. Filling in the questionnaire required between 5 and 8 minutes.

### **3.3 Measurement scales**

The independent variable was the numerical rating: good vs. bad. The mediator variable was the trustworthiness in the hotel proposal, measured using 4-items, rated in a seven-point Likert scale (1=completely disagree and 7=completely agree). Items were adapted from Sichtmann (2007). The moderator variable was the number of reviews (high vs. low). The dependent variable was the hotel consideration, measured using 4-items, rated in a seven-point Likert scale (1= not likely to be included and 7= likely to be included). Items were adapted from Dodds, Monroe and Grewal (1991).

Likewise, customer behaviour cannot be fully understood unless the effect of interpersonal influence is considered; it has been proven that “subject’s susceptibility to interpersonal influence is a general trait that varies across individuals” (Bearden, Netemeyer & Teel, 1989, p.473). Defined as the tendency to learn about products and services by observing others and/or seeking information from others, this susceptibility to interpersonal influence refers to the “inferences made by consumers based upon the observation of the behaviour of others” (Park & Lessig, 1977, p.103). Thus, we also measured "consumer susceptibility to interpersonal influence" (SII) as a covariate, using 5 items adapted from Bearden et al. (1989) scale, rated in a seven-point Likert scale (1= low and 7= high).

## **4. Data Analysis and Results**

Manipulation Check: Results show that the manipulation of ratings was successful. Participants exposed to a hotel with a good rating reported a significantly lower trust ( $M = 4.46$ ,  $SD = 1.12$ ) than those exposed to a hotel with a bad numerical rating ( $M = 4.97$ ,  $SD = 1.09$ ), ( $t(128) = 2.340$ ,  $p < .05$ ). However, a bad rating discouraged participants from including the option in their consideration set. There was a significant main effect of

ratings—good vs. bad—( $t(128) = -2.454, p < .05$ ), indicating a difference in hotel consideration likelihood between participants exposed to good hotel rating ( $M = 4.87, SD = 1.11$ ) and those exposed to bad hotel rating ( $M = 4.3, SD = 1.17$ ). Consumer susceptibility to interpersonal influence did not differ among groups ( $F(3,126) = 1.922, p > .05$ ). Figure 2 provides a summary of this initial result.

INSERT FIGURE 2

#### ***4.1 Mediation analysis***

In hypothesis 1, we proposed a mediation effect of trust in the relationship between the numerical rating and the hotel consideration. We tested H1 using PROCESS macro Model 4 provided by Hayes (2013). We used the rating as the independent variable, trust in the hotel proposal as the mediator variable and hotel consideration as the dependent variable, while controlling for susceptibility to interpersonal influence.

Table 1 shows that the numerical rating has a significant negative effect on trustworthiness ( $a = -.51, p < .05$ ). Those individuals assigned to the good rating condition had a lower trustworthiness score than those assigned to the bad rating condition.

INSERT TABLE 1

Trust on rating, in turn, has a significant positive effect on the hotel consideration. ( $b = .76, p < .000$ ). This result suggests that when trust on the rating increases, participants tend to consider the offer to a larger extent. Finally, the indirect effect of numerical rating on hotel consideration via trust ( $ab = -.40$ ) based on 5,000 bootstrap samples was significant, with 90% confidence interval (CI) excluding zero ( $-.71$  to  $-.08$ ) (Hayes, 2009). The covariate, susceptibility to interpersonal influence, was statistically significant only in the relationship between the numerical rating and trust, but not in the indirect relationship between trust and hotel consideration. Together, the mediation model indicates that the effect of the numerical rating on the consideration of the hotel offer is mediated by trust.

#### ***4.2 Moderated mediation***

In Hypothesis 2, we predicted that good online ratings are trustworthy only if the number of reviews is high and not otherwise, whereas bad ratings are trustworthy regardless of the number of reviews. This moderation effect will influence the indirect path between rating and trust in a moderated mediation relationship. To test this conditional indirect effect, we used PROCESS macro Model 7 provided by Hayes (2013) with 5,000 bootstrap estimates to generate 95% bias corrected confidence intervals for the observed indirect conditional effects. Results for the overall model can be seen in table 2.

We found that the interaction between the rating and the number of reviews is significant ( $p < .000$ ). The rating (bad vs. good) had different effects on how trustworthy the consumers perceived the rating to be, depending on the number of reviews.

#### INSERT TABLE 2

For bad ratings, the conditional indirect effect is not statistically significant. This interaction effect is illustrated graphically in Figure 3. The index of the moderated mediation is significant.

#### INSERT FIGURE 3

The results support that except among those who have good rating supported by a high number of reviews, there is no significant difference in their considerations.

## 5. Discussion

The primary objective of this research was to further examine the influence of online ratings and number of reviews on the intention of individuals to include a certain offer (option) in their consideration set while they are searching for information during the first stage of the decision-making process. The empirical study provides evidence of the mediating effect of trust on the relationship between the rating and the consideration of the hotel offer.

We found that web users trust low numerical ratings more than high ratings. Notwithstanding, with regard to hotels, web users tend to shortlist those hotels which have better ratings. In addition, this study demonstrates the moderation effect of the number of reviews on the relationship between the numerical rating and the trustworthiness of the rating.

On the one hand, low ratings are trustworthy, regardless of the number of reviews, while on the other hand, high ratings are trustworthy only when they are supported by a high number of reviews. These results are underpinned by the heuristic of social proof (Cialdini, 2009). The moderating effect of the number of reviews on the relationship between rating and trustworthiness displays a clear asymmetric effect.

The study and its results are consistent with the findings of Sokolova and Krishna (2016), who suggest that there is a difference between making decisions of choosing vs. rejecting alternatives. When subjects find an option that has received a good aggregate rating, their task is to take the decision of choosing it or not, whereas in the case of a bad rating, their focus is on whether to reject it or not. Therefore, the differences in purpose between choosing and rejecting certain options can modify the way the information is used during the decision-making process. In fact, the use of a heuristic (social proof) to measure trustworthiness of high ratings is supported by Kuvaas and Selart (2004). Easier and fast deliberation is associated with considering attractive alternatives, whereas subjects become more vigilant when evaluating unattractive alternatives.

Susceptibility to interpersonal influence distorts the influence of ratings and reviews on trustworthiness. When customers are more susceptible to interpersonal influence, they are more prone to be influenced by the number of reviews. In other words, susceptibility to interpersonal influence increases the attention towards ratings and reviews. However, as it seems reasonable, SII does not alter the influence of trustworthiness on the consideration of the hotel. Customers may differ in susceptibility to interpersonal influence, but once they evaluate a certain hotel as trustworthy they tend to follow the same decisional pattern.

In our conceptual framework and experimental design, we tried to keep the context as simple as possible, deliberately avoiding price information. Further research could address the conditions in detail under which the influence of price information combined with a certain rating and a number of reviews when choosing or rejecting alternatives could be analyzed. For instance, under a bad rating condition, the perception of financial losses has proved to attenuate the price framing effect (Chevalier & Mayzlin, 2006).

Besides the direct influence of numerical ratings and the number of reviews on hotel consideration, special attention should be given to the effect these figures exert on the reputation of the hotel. Potential buyers infer reputation by observing and discussing the rating of an offer. This structured e-WOM can not only predict sales but change its tendency

by influencing consumers (Liu, 2006). Research in this direction would help to reveal the economic dimension of ratings and reviews in the short, medium, and long term.

This paper analyses the first stage of consumers' decision-making process. Further research is needed to improve understanding of consumers' behaviour in the subsequent steps of the decision-making process. Studying these steps will allow us to understand how consumers narrow down the alternatives until the final decision is made.

One aspect to keep in mind is that booking a hotel room is an experiential purchase. In such context, the assessment of the consumer is complex because a service entails an inherent variability, and guessing in advance how the experience is going to be like is not easy. Users search for specific information of each preselected option that helps create a vivid mental image of what kind of experience they may have (Holbrook & Hirschman, 1982). Research on mental imagery created by hotel reviews, and the primacy effect of rating would help to better understand the decision-making process in the hospitality industry.

The current research yields numerous, directly implementable, managerial implications. The importance of ratings and reviews in consumers' decision-making process is a significant element to consider. Customers may trust the ratings and reviews or not, but never refuse to interpret them. A good rating with low reviews will tend to be considered untrustworthy with the option probably being rejected. In other words, the subject may reject the option but this decision is already an interpretation of the figures.

These findings led us to make several recommendations. First, a deeper understanding of the use of ratings and reviews is absolutely necessary. During the first stages of the buying process, consumers tend to focus on the quantity of the reviews rather than the content of the reviews, which might be more relevant at the time of making a final decision. It would be of great interest for the website user to have a weighted scoring system of the reviews, capable of highlighting the extent to which these reviews would help them form an accurate idea of the hotel, its quality, and the expected experience. We are sure that big data techniques will soon provide tools such as these, enriched by the users profile and past behaviour. At this point, investigating the interaction of numerical ratings, number of reviews, and content/nuances of the reviews can further clarify the process of how they affect online consumer behavior.

Second, this weighted scoring system of reviews could also help manage manipulated reviews, since there are patterns of fraudulent manipulations that have already been identified

(Hu, et al. 2012). The inclusion of a trustworthiness index in social communities would open a new research field because, in today's times, trust is always a perceived attribute.

Third, the importance placed by the user on the number of reviews led us to recommend hotel managers to encourage their customers to leave a review of their visit on the website. Previous knowledge about satisfaction and positive experiences will determine the adequate moment to ask the customer to write a review; for e.g., while the customer is still at the hotel or once the customer has returned home.

Finally, the asymmetric use of the information observed in this study, where we trust in bad but are suspicious of good, should warn the hospitality sector of the impact of a bad rating, but more importantly, it provides a new evidence of our biased behaviour.

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TABLE 1. Coefficients for the Mediation Model

Consequent								
		M (Trust on rating)			Y (Hotel consideration)			
Antecedent		Coeff	SE	<i>p</i>		Coeff	SE	<i>p</i>
Numerical rating	a	-0.51	.21	.012	c'	.51	.21	.000
Trust on rating		--	--	--	b	.76	.05	.000
Constant	i <sub>1</sub>	3.70	.36	.000	i <sub>2</sub>	.94	.31	.002
Covariate (SII)		.22	.08	.004		.01	.04	.750
R <sup>2</sup> = .301				R <sup>2</sup> = .630				
F(2,127) = 7.19, <i>p</i> = .001				F(3,126) = 71.66, <i>p</i> = .000				

TABLE 2. Coefficients for the Moderated Mediation Model

Mediating variable (trustworthiness)				
Predictor variables R <sup>2</sup> =.53, F(4,125)=35.74, p<.000	β	SE	t	p
Constant	4.05	.07	14.88	.000
Numerical rating	-.47	.15	-3.07	.002
Number of reviews	1.42	.15	9.04	.000
Number of reviews x Numerical rating	1.69	.31	5.48	.000
Covariate (SII)	.14	.05	2.57	.011

Dependent variable (hotel consideration)				
Predictor variables (R <sup>2</sup> =.63, F(3,126)=71.66, p<.000)	β	SE	t	p
Constant	.94	.31	3.02	.003
Trustworthiness	.76	.05	13.63	.000
Rating	.91	.13	6.67	.000
Covariate (SII)	.01	.05	.18	.859

Conditional indirect effects of X on Y at values of the moderator					
Mediator	Number of reviews	β	SE	LLCI	ULCI
Trustworthiness	Low	-1.01	.18	-1.42	-.68
Trustworthiness	High	.29	.16	-.004	.61

Index of Moderated Mediation				
Mediator	β	SE	LLCI	ULCI
Trustworthiness	1.30	.25	.89	1.82

FIGURE 1. Moderated mediation model of the influence of ratings on product /service consideration

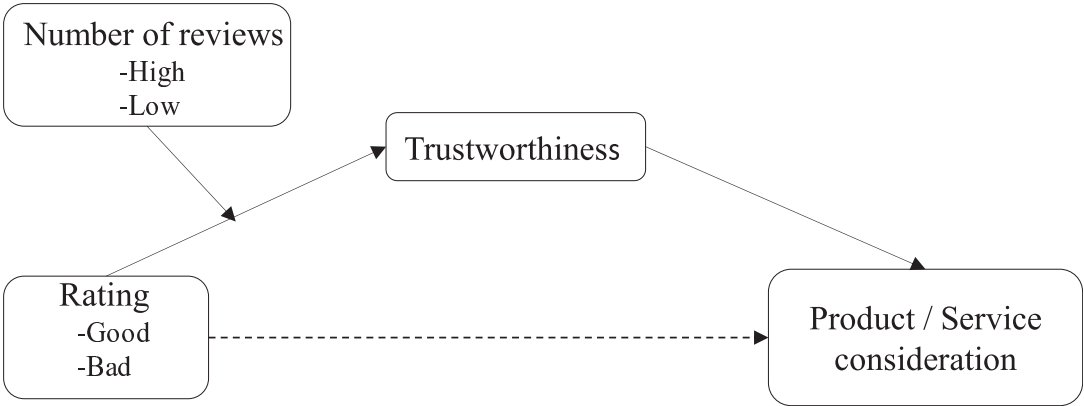


FIGURE 2. Means of trustworthiness and hotel consideration between good and bad ratings

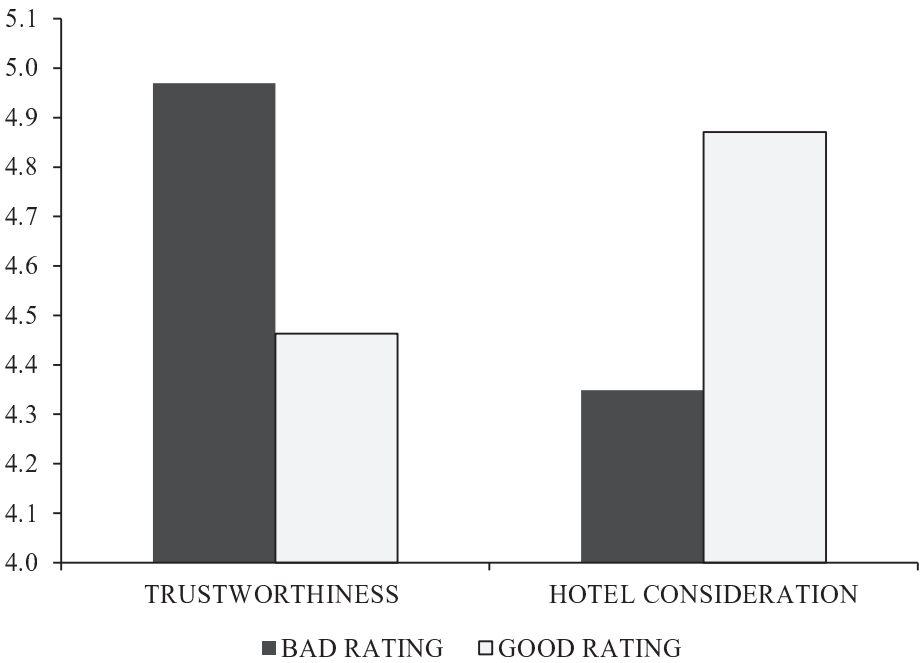


FIGURE 3. Moderation effect of number of reviews



Your collaboration and opinion is very important.  
This is a completely anonymous questionnaire. Answering it will take less than 5 minutes.  
**Thank you in advance for your cooperation.**

1) How many times do you travel per year? Please indicate the option that best fits your situation.

1	One trip per year
2	Two or three trips per year
3	More than four trips per year
4	I travel every month


2) When I travel I stay in hotels...

Never	1	2	3	4	5	6	7	8	9	10	Always
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3) When I travel I search for accommodation through the Internet...

Never	1	2	3	4	5	6	7	8	9	10	Always
-------	---	---	---	---	---	---	---	---	---	----	--------

4) Imagine you are planning a weekend trip with some friends that you are going for a weekend with several friends to a European city. You are looking for accommodation to spend two nights. Below, we present a possible alternative (best price), within the search you have performed; let us know your opinion.



**Hotel KZW**

4.5 stars (5 icons)

Located five minutes walk to the city center

[View details >](#)

**9,2**

913 reviews

**BEST PRICE**

There were four pictures in all: 2 (good vs. bad rating) x 2 (high and low number of reviews)

Please, read carefully the following sentences regarding this hotel and **rate your level of agreement/disagreement** with the statements from 1 (*completely disagree*) to 7 (*completely agree*)

	<i>Completely disagree</i>	<i>Somewhat Disagree</i>	<i>Neutral</i>	<i>Somewhat agree</i>	<i>Completely agree</i>		
I believe this hotel would be trustworthy	1	2	3	4	5	6	7
I believe this hotel would be dependable	1	2	3	4	5	6	7
I would have confidence in this hotel	1	2	3	4	5	6	7
I believe this hotel would be responsible	1	2	3	4	5	6	7

	<i>Completely disagree</i>	<i>Somewhat Disagree</i>	<i>Neutral</i>	<i>Somewhat agree</i>	<i>Completely agree</i>		
I consider this hotel a good alternative	1	2	3	4	5	6	7

Now, please, regarding this hotel **rate the likelihood of the** statements below from 1 (*very low*) to 7 (*very high*)

	<i>Very Low (not likely to be included)</i>					<i>Very high (likely to be included)</i>	
The likelihood of considering this hotel is	1	2	3	4	5	6	7
The probability that I would consider this hotel as an option is	1	2	3	4	5	6	7
My willingness to shortlist this hotel is	1	2	3	4	5	6	7

5) And finally, think about how you make decisions, in any field (not just hotels)

	<i>Completely disagree</i>					<i>Completely agree</i>	
It is very important that others like the products and brands I buy	1	2	3	4	5	6	7
I frequently gather information from friends or family about a product before I buy	1	2	3	4	5	6	7
I like to know what brands and products make good impressions on others	1	2	3	4	5	6	7
I often identify with other people by purchasing the same products and brands they purchase	1	2	3	4	5	6	7
If I have little experience with a product or a service, I often ask my friends about it	1	2	3	4	5	6	7

i) Gender:

<input type="checkbox"/>	Male
<input type="checkbox"/>	Female

ii) What is your age?

<input type="checkbox"/>	Less than 20 years old
<input type="checkbox"/>	From 21 to 30
<input type="checkbox"/>	From 31 to 55
<input type="checkbox"/>	More tan 55

iii) What is your highest level of studies completed? *If currently enrolled, highest degree received:*

<input type="checkbox"/>	University degree
<input type="checkbox"/>	Vocational school
<input type="checkbox"/>	Secondary school
<input type="checkbox"/>	Primary school

iv) Household size: How many people live at home including you?

<input type="text"/>	persons
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v) Employment Status: Are you currently...?

<input type="checkbox"/>	Employed for wages
<input type="checkbox"/>	Self-employed
<input type="checkbox"/>	Out of work
<input type="checkbox"/>	A homemaker
<input type="checkbox"/>	A student
<input type="checkbox"/>	Military
<input type="checkbox"/>	Retired